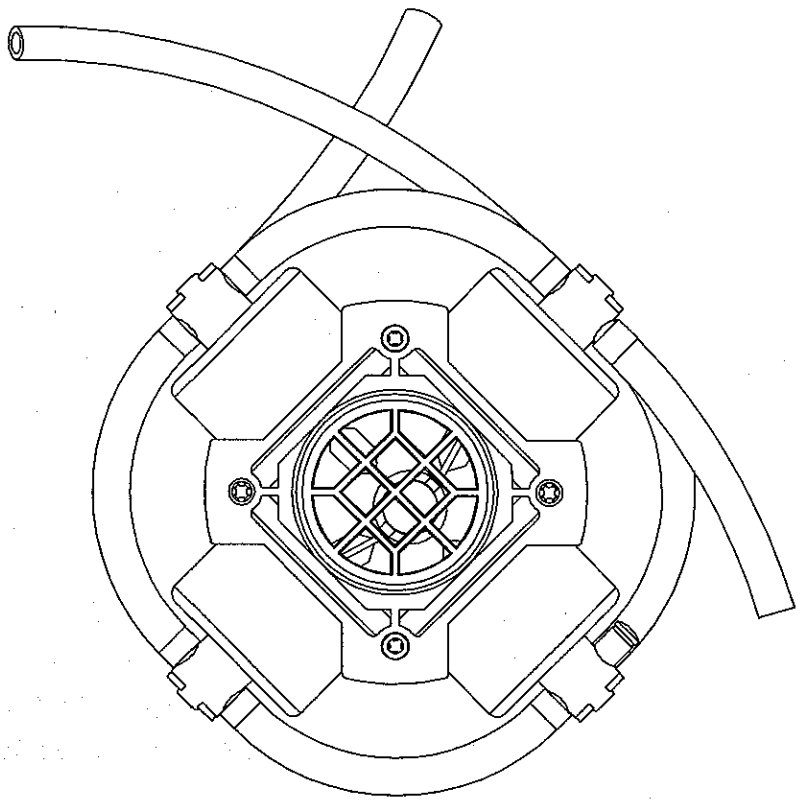
Vario 026



Service Instructions
190.0609/05.02

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Dear Customer

We should like to congratulate you on purchasing your Medela Vario pump. We are confident that you have made the right choice and that you will be fully satisfied with the product.

The following pages show the user how to use and maintain the pump. If these service instructions are carefully followed, your pump will have a long and reliable operating life.

We should like to thank you for the confidence you have placed in our company by purchasing this product.

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The following terminology has been used in these service instructions:

NOTE	Tip to facilitate work
N.B.	Material damage may be caused
WARNING	Danger to life and limb

We develop and manufacture our products with a certificated Quality Management System in accordance with ISO 9001 and EN 46001 as well as with the American FDA guidelines for GMP.

ISO	International Organization for Standardization
EN	European Norm
FDA	Food and Drug Administration
GMP	Good Manufacturing Practices

Medela AG reserves the right to change technical specifications for the improvement of the product at any time and without prior notice.

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2 Service Agent responsible

Medela head office in Switzerland

Medela AG
Medical Technology
Lättichstrasse 4
CH - 6341 Baar/Switzerland

Tel. +41 41 769 51 41
Fax +41 41 769 51 05
e-mail info@medela.ch

Subsidiary in Germany

Medela Medizintechnik
Postfach 1148
D - 85378 Eching

Tel. 089 / 319 75 9-0
Fax 089 / 319 75 999

Subsidiary Sweden

Medela Medical AB
Box 7266
S - 187 14 Täby

Tel. 08 630 09 40
Fax 08 630 09 48
e-mail medela@algonet.se

Subsidiary France

Medela France Sarl
Les Burochettes - RN 20
F-91150 Morigny-Champigny

Tél. 01 69 16 10 30
Fax 01 69 16 10 32

Service agent responsible (to be completed by the user)

_____

_____

_____

_____ Phone _____

_____ Fax _____

_____ e-mail _____

3 Brief description

QuatroFlex™ technology

The suction unit on the Vario is a further innovative development of Medela's well-proven piston/cylinder system. With the QuatroFlex™ technology, the drive power is transferred to the four piston/cylinder modules by means of high-grade, flexible thin-film hinges. The required suction value is rapidly built-up. High suction performance, low weight and quiet operation are further positive features of the Vario pump.

Due to its modular construction, the QuatroFlex™ suction unit can be changed in just a few minutes. The robust, attractively-designed plastic casing protects the pump even under the toughest operating conditions.

Vario pumps are, naturally, maintenance-free - as are all Medela suction pumps.

With this technology, Medela has achieved its ambition: a lightweight, compact suction unit for mobile use with all the benefits of the piston/cylinder construction system.

4 Technical data

- Secretion aspirator
  - AC version **Vario 026.21_ _**
  - AC/DC version **Vario 026.51_ _**
  - Suction capacity: 18 litres per minute, marked:'low flow'
  - max. Vacuum: up to -75 kPa (-563 mmHg) marked:'high vacuum'

- Low vacuum aspirator
  - AC version **Vario 026.72_ _**
  - AC/DC version **Vario 026.82_ _**
  - Suction capacity: 8 litres per minute, marked:'low flow'
  - Vacuum range: up to -9 kPa / -90 mbar (-68 mmHg) marked:'low vacuum'

- Voltage
  - 230 - 240 V/50 Hz and 230 - 240 V/60 Hz
  - 120 V/60 Hz
  - 12 VDC / 50/60 Hz (AC/DC versions)
  - other versions are available on request

- Power requirements
  - 230 - 240 V/50 Hz ⇨ 90 W
    Fuse: T 800 mA / 250 V
  - 120 V/60 Hz ⇨ 70 W
    Fuse: T 1.25 A / 250 V
  - 12 VDC/50/60 Hz ⇨ 50 W
    No fuse fitted

- Dimensions
  - Height 380 mm
  - Width 170 mm
  - Depth 285 mm
  - Weight AC version 3.5 kg
  - Weight AC/DC version 5.1 kg

- Safety specifications
  - Category II (double insulation)
  - Type B
  - **IPX1** Protected against dripping water

- Operating conditions +5°C to +40°C
- Storage conditions - 20°C to + 50°C

Note The maximum vacuum values given in the technical data have been measured at sea level. The maximum vacuum value varies according to altitude or barometric pressure - q.v. table below.

Location	0 metres above sea level	500 metres above sea level	1,000 metres above sea level	2,000 metres above sea level
Multiplication factor	1.00	0.94	0.88	0.78
Maximum value calculated	75.0 kPa	70.5 kPa	66.0 kPa	58.5 kPa

- **Disposal**

The Vario is of modular design and is thus easy to disassemble into its individual components.
The Vario is largely constructed of technical plastics. The motor, condenser, rechargeable battery, etc. should be disposed of separately - according to local regulations.

Warning

Please note the following when operating, transporting, storing, repairing and disposing of the Vario and its accessories of the suction unit and accessories through incorre: The risk of infectious liquids being aspirated or contamination ct use cannot be eliminated. Local precautions regarding hygiene should therefore be observed.

- **Test marks**

➢ CE marking 89/336/EEC re.
EMV based on IEC 601.1.2
➢ Quality Management System in accordance with ISO 9001 and EN 46001
➢ National test symbols available on request

5 Routine inspection

Routine inspection of the Vario includes the following tasks:

➢ **Check the internal function of the pump**
- Seal off the suction connection of the Vario with a plug
- Set the vacuum regulator to maximum
- Switch on the pump
  ⇨ Check the maximum vacuum according to the technical specifications of the Vario

➢ **Check internal tubing**

Dirty, brittle tubes must be replaced.

➢ **Check the QuatroFlex™ suction unit**
- Visual check of the tube connections
- Switch the on pump, visually check the film hinges (all 4 pistons operational)

Note: If necessary, lubricate the attachment area on the drive casing of the QuatroFlex™ suction unit with a lubricant suitable for plastics (e.g. OKS 463). This improves quiet operation and increases the life expectancy of the QuatroFlex™ suction unit.

➢ **Check the flat belt and flat belt tensioning pulley**
- Visual check for wear, dirt, etc.
- Check functional movement by turning the flat belt

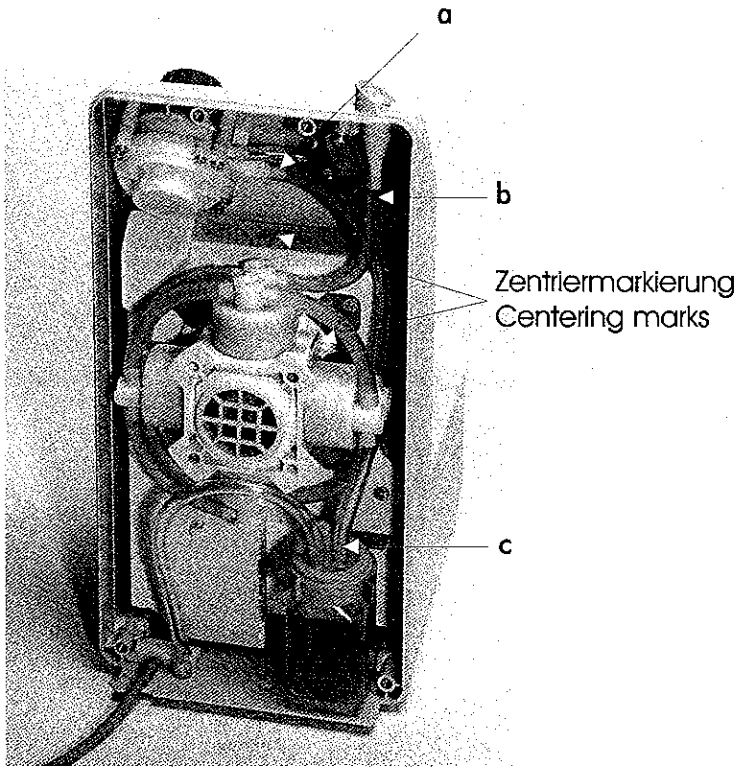
Only for AC/DC models

➢ **Check function and capacity of the rechargeable battery**
- Disconnect the power cable from the power socket and switch on - pump functions ⇨ O.K.
- Recharge the battery for approx. 6 hours (100% charge), switch on the pump, set the vacuum to approx. 50 kPa and check the running time

  Running time > 30 minutes - battery capacity O.K.
  Running time clearly below 30 minutes - battery should be replaced.

6 Replacing the QuatroFlex™ Suction unit

1. Switch off the pump - disconnect the power cord from the power socket
2. Release the screws (4) on the rear of the appliance and remove the cover
3. Release the tubing connections as shown in the diagram (a - b - c)
4. Turn the QuatroFlex™ suction unit counterclockwise by 45°. Hold the pump firmly and withdraw the suction unit
5. General cleaning (tubes, etc.)
6. QuatroFlex™ suction unit
   - place on the drive eccentric and press against the seating
   - center it using the red marking lines
   - and rotate it clockwise 45° as far as the stop
7. Push on the suction tubes as shown in the diagram (a - b - c)
8. General check
9. Replace the cover (N.B. Ensure that the power cord is not jammed!) and fix in position with the 4 screws
10. Plug in the power cord, switch on the pump - and continue working



7 Servicing work for all models

Note We recommend removing the QuatroFlex™ suction unit from the Vario prior to conducting the following work.

- **Replacing the vacuum gauge (A)**

  First remove the tube connector (Z-1) to the vacuum regulator (B). Then release the 2 screws (Z-2) and disassemble the bracket (Z-3) with the vacuum gauge.

  600.0495 **Vario vacuum gauge, 100 kPa, secretion aspirator** *
  600.0496 **Vario vacuum gauge, 10 kPa, low vacuum aspirator** *
  * includes connection tube/bracket/2 screws

- **Replacing the membrane vacuum regulator (B)**

  First remove the tube connector (Z-1) to the vacuum regulator (B). Then release the 4 screws (Z-4) and remove the vacuum gauge.

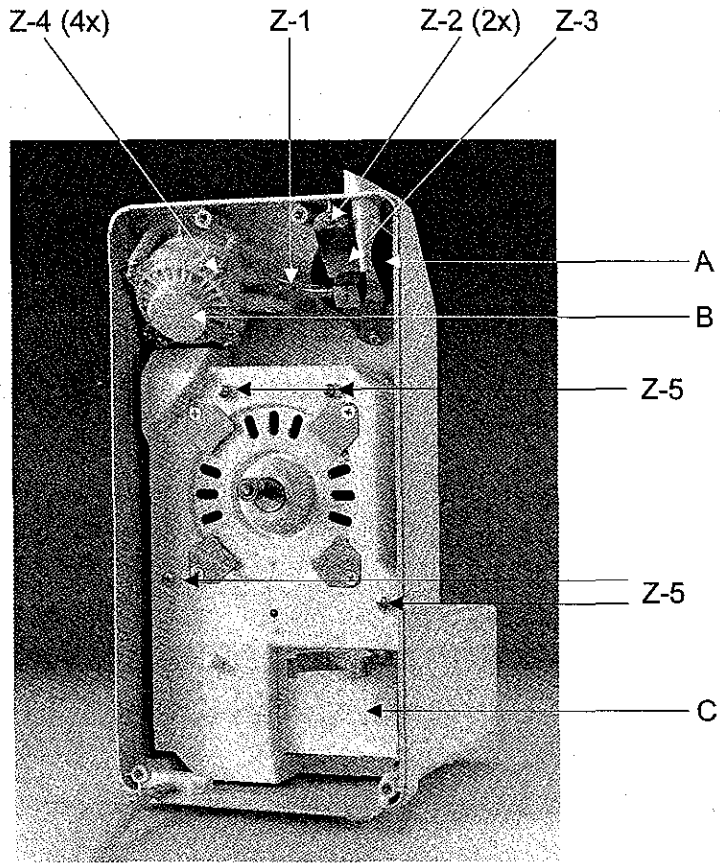
  N.B. The screws marked with red belong to the regulator - do not release them!

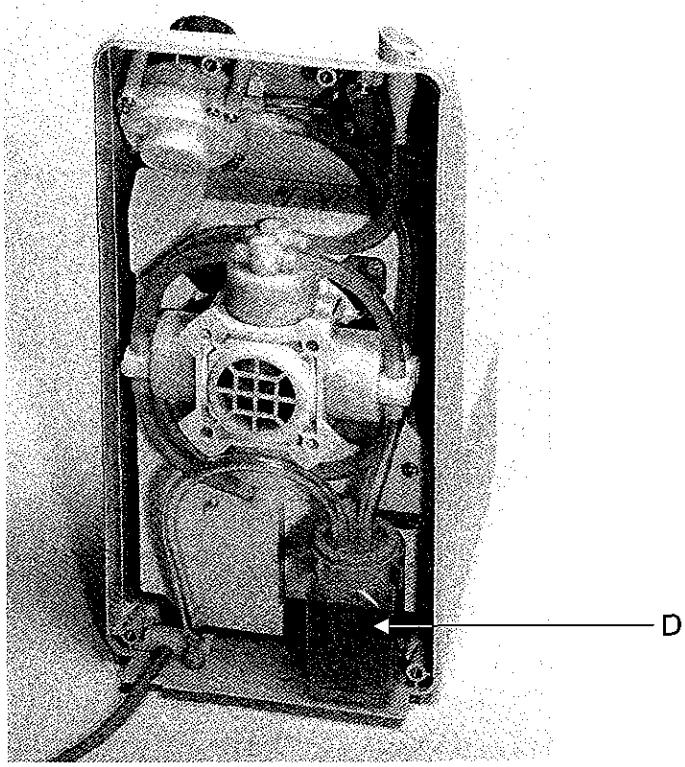
  Note The membrane vacuum regulator is factory-calibrated. If the top is removed and the position altered, the correct setting will have to be adjusted by iteration.

  600.0498 **Vacuum regulator, Vario secretion aspirator** **
  600.0497 **Vacuum regulator, Vario low vacuum aspirator** **
  ** includes connection tube / 4 screws

- **Replacing the sound absorber (D) and the sound absorber holder (C)**

  800.0276 **Vario sound absorber** - includes 2 connection tubes
  600.0540 **Sound absorber holder, complete**
  includes plate / bracket / screws


Z-4 (4x)
Z-1
Z-2 (2x)
Z-3
A
B
Z-5
Z-5
C


D

- Disassembling the drive unit (E)

  Disconnect the QuatroFlex™ suction unit and the sound absorber. Then release the 4 attachment screws (Z-5) (q.v. page 10) and remove the drive unit from the casing.

  ➢ **Replacing the motor (F) and condenser (G)** - AC models only

600.0539	Vario motor AC 230-240V/50Hz, complete incl. 2.5µF condenser, with snap connection
600.0560	**Vario motor AC 230-240V/60Hz, complete** incl. 2.5µF condenser, with snap connection
600.0538	**Vario motor AC 120V, complete** incl. 9µF condenser, with screw connection

  ➢ **Replacing the motor (F)**

910.0064	**Condenser motor, 230-240V/50Hz**
910.0029	**Condenser motor, 230-240V/60Hz**
910.0066	**Condenser motor, 120V/60Hz**
910.0018	**Direct current motor, 12V DC, complete**

  ➢ **Replacing the condenser (G)** - AC models only

954.0418	**Condenser, 2.5µF (with snap connection)**
954.0417	**Condenser, 9µF (with screw connection)**

  ➢ **Replacing the belt tensioning pulley (H)**

  Remove the flat belt (I). Remove the belt tensioning pulley (H) together with the retaining clip. On reassembly, ensure that the belt pulley functions correctly.

600.0499	**Belt tensioning pulley, complete**

  ➢ **Replacing the flat belt (I)**

  Fit the flat belt and check its operation by rotating the pulley. The flat belt centres itself automatically.

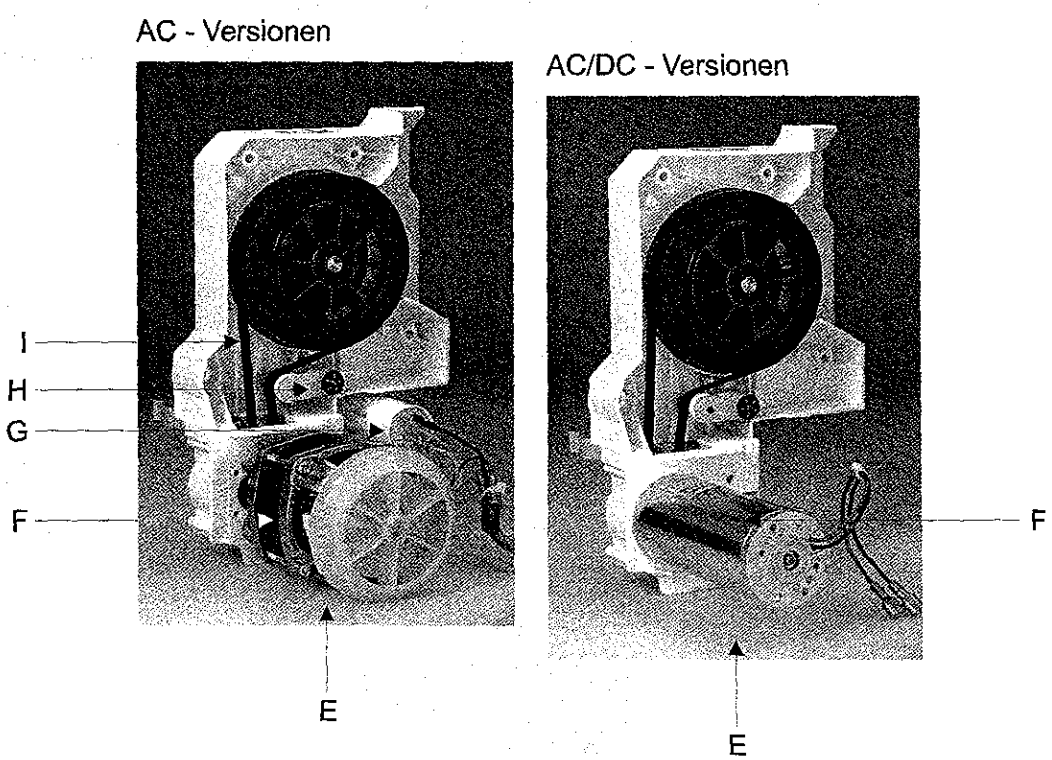
824.1373	**Flat belt**

  ➢ **Replacing the drive unit (E)**

600.0493	**AC drive unit (without motor and condenser)**
600.0535	**AC/DC drive unit (without motor)**

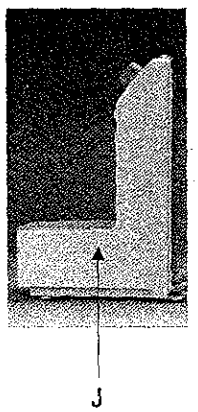
- **Fitting the drive unit (E)**

  Position the drive unit on the 4 rubber buffers and attach with the 4 attachment screws. Fit the QuatroFlex™ suction unit and the sound absorber.

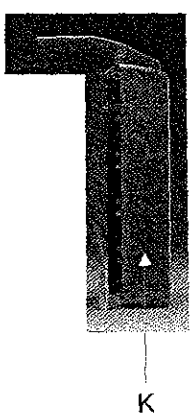


- **Replacing the casing (J) and the rear cover (K)**

  Dependent on the different lettering, the Vario casings have different order numbers. The rear covers of the AC and AC/DC versions are also different.



600.0430	Secretion Aspirator casing AC pre-assembled
600.0427	Rear cover AC, complete
600.0480	Low Vacuum Aspirator casing AC pre-assembled
600.0427	Rear cover AC, complete
600.0438	Secretion Aspirator casing AC/DC pre-assembled
600.0519	Rear cover AC/DC, complete
600.0525	Low Vacuum Aspirator casing AC/DC pre-assembled
600.0519	Rear cover AC/DC, complete



- **Check function and capacity of the rechargeable battery**

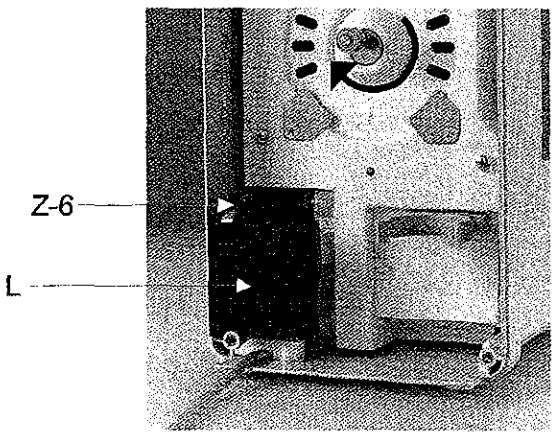
  - Disconnect the power cable from the power socket and switch on - pump functions ⇨ O.K.

  - Recharge the battery for approx. 6 hours (100% charge), switch on the pump, set the vacuum to approx. 50 kPa and check the running time
    Running time > 30 minutes - battery capacity O.K.
    Running time clearly below 30 minutes - battery should be replaced.

- **Replacing the rechargeable battery (L)**

  Switch off the pump and disconnect it from the power supply. Remove the rear cover. Disconnect the negative pole of the battery (Z-6 - black lead). Pull the battery out of the drive unit so that the positive pole (red lead) can be disconnected.
  Ensure that the polarity is correct when reconnecting - first connect the positive pole (red lead), push the battery into the holder and then connect the negative pole. Check for operation, turn the drive shaft clockwise.

  919.0005 **Rechargeable battery 12V DC**



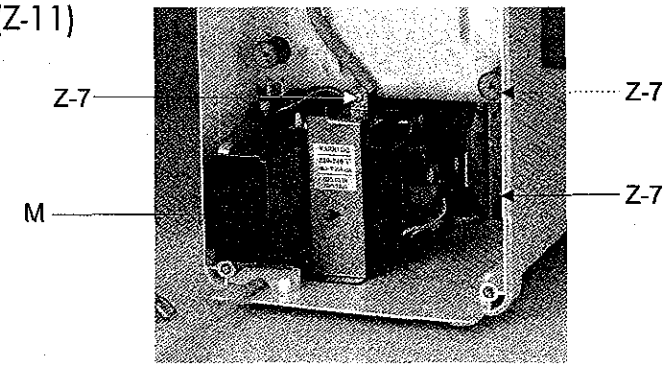
- **Replacing the electronic module (M)**

  The electronic module consists of a power supply, the control and the battery charger unit.

  N.B. The following work should only be carried out by qualified staff. Care should be taken to protect against electrostatic charges (ESD). Schematic on page 16.

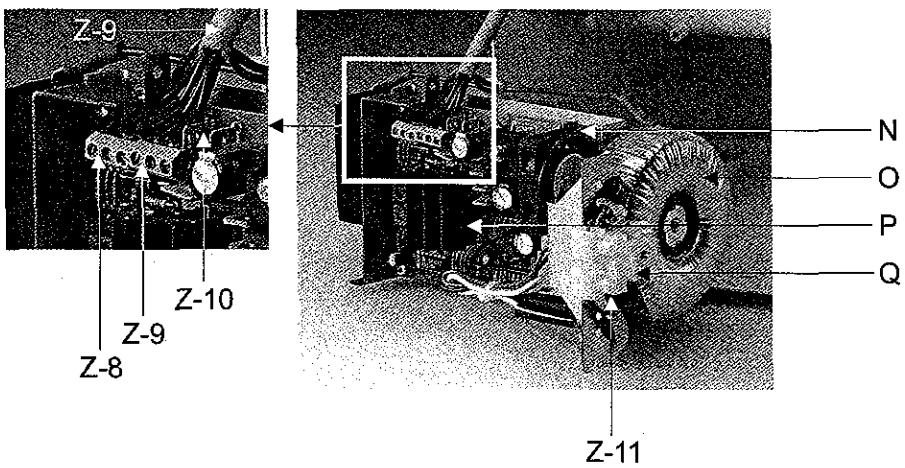
- Switch off the pump, disconnect from the power supply, remove the rear cover, drive unit and rechargeable battery.
- Release the 3 screws (Z-7) and remove the electronic module from the casing.
- Disconnect cable to battery (Z-8: negative ⇨ black / positive ⇨ red)
- Disconnect numbered cables to cable harness (Z-9)
- Disconnect connectors to motor (Z-10: negative ⇨ black/positive ⇨ red)
- Disconnect the power cord (Z-11)

Reassemble in the reverse order.



600.0516 Electronic module Vario DC 230-240V/50Hz

600.0520 Electronic module Vario DC 120V/60Hz

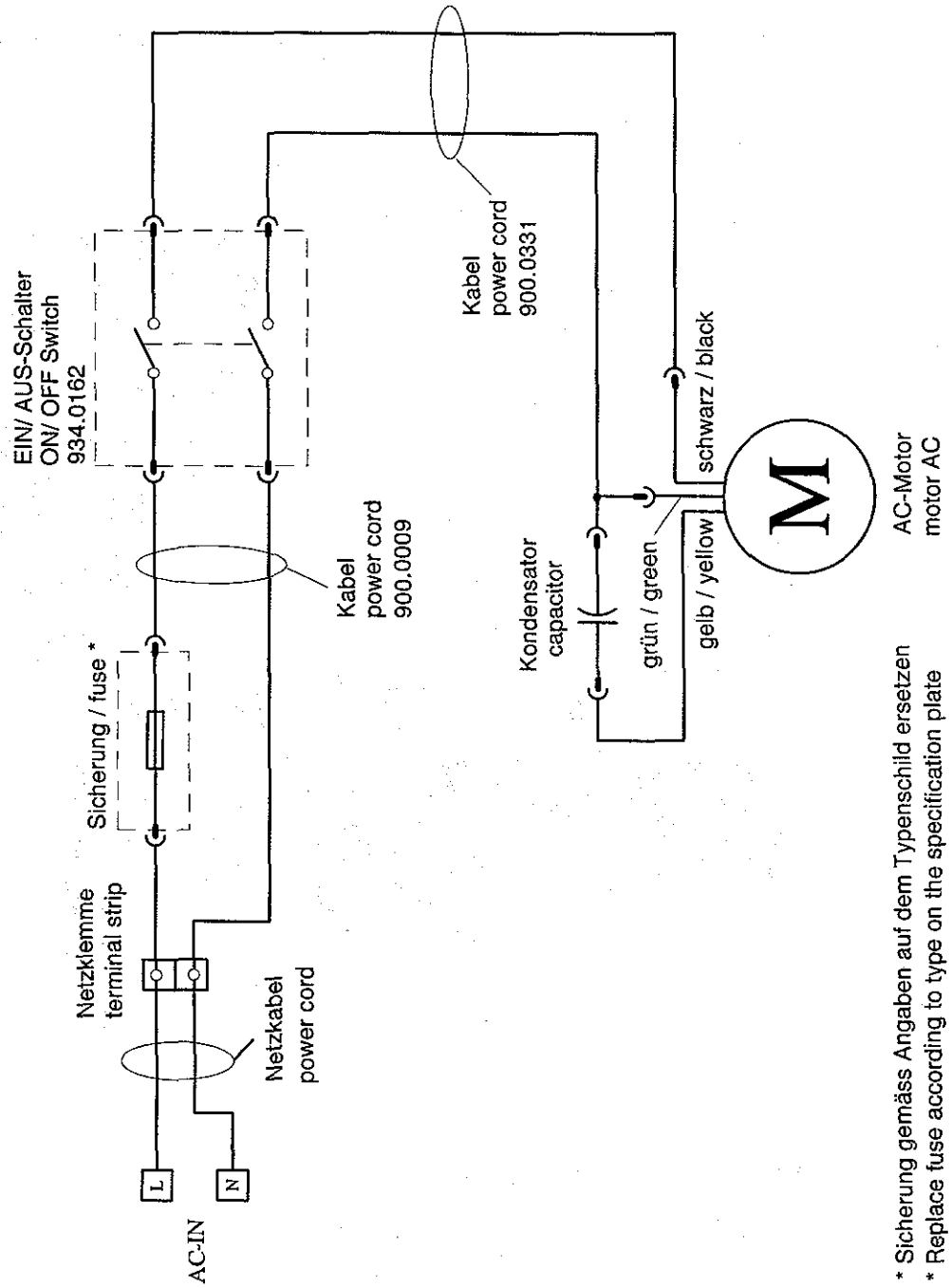


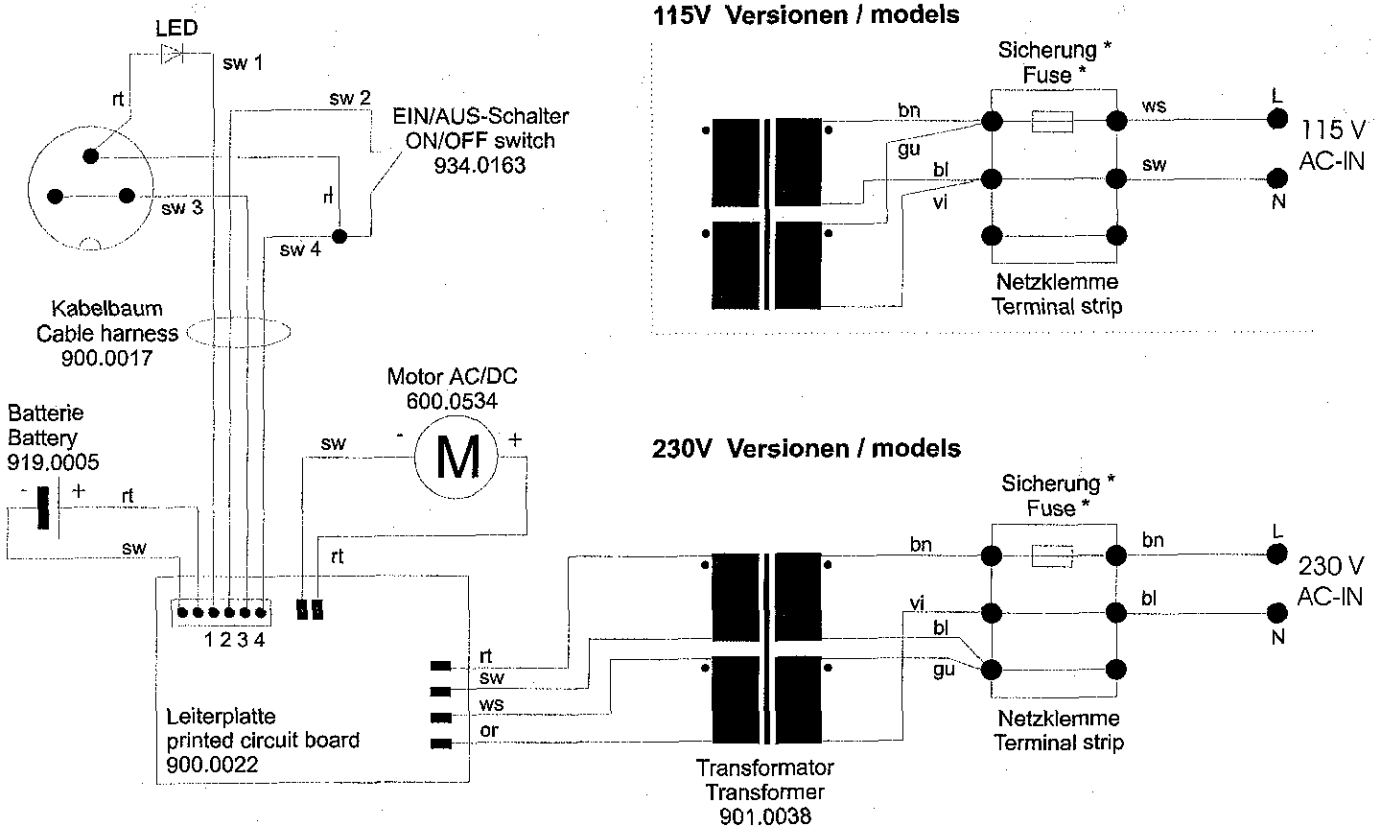
- **Replacing individual parts of the electronic module**

The following spare parts are available:

910.0028 Cooling fan 12V DC (N)
901.0038 Transformer for 120 / 230-240V appliances (O)
900.0022 Assembled printed circuit board (P)
931.0014 Fuse 230-240V equipment T 400 mA / ø 5 x 20 mm (Q)
931.0024 Fuse 120V equipment T 800 mA / ø 5 x 20 mm (Q)

AC models


EIN/ AUS-Schalter
ON/ OFF Switch
934.0162
Kabel
power cord
900.0331
Kabel
power cord
900.0009
Sicherung / fuse *
Netzklemme
terminal strip
Netzkabel
power cord
L
N
AC-IN
Kondensator
capacitor
grün / green
gelb / yellow
schwarz / black
M
AC-Motor
motor AC
* Sicherung gemäss Angaben auf dem Typenschild ersetzen
* Replace fuse according to type on the specification plate



bl	blau	blue	**rt**	rot	red
bn	braun	brown	**sw**	schwarz	black
gu	grau	grey	**vi**	violett	violet
or	orange	orange	**ws**	weiss	white

* Sicherung gemäss Angaben auf dem Typenschild ersetzen

* Replace fuse according to type on the specification plate

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Secretion Apirator AC 026.2 _ _ _

Item	Order No.	Quantity	Designation
01	600.0495	1	Vario vacuum gauge, 100 kPa
02	600.0498	1	Vacuum regulator, Vario Secretion Aspirator
03	600.0430	1	Secretion Aspirator casing AC, pre-assembled

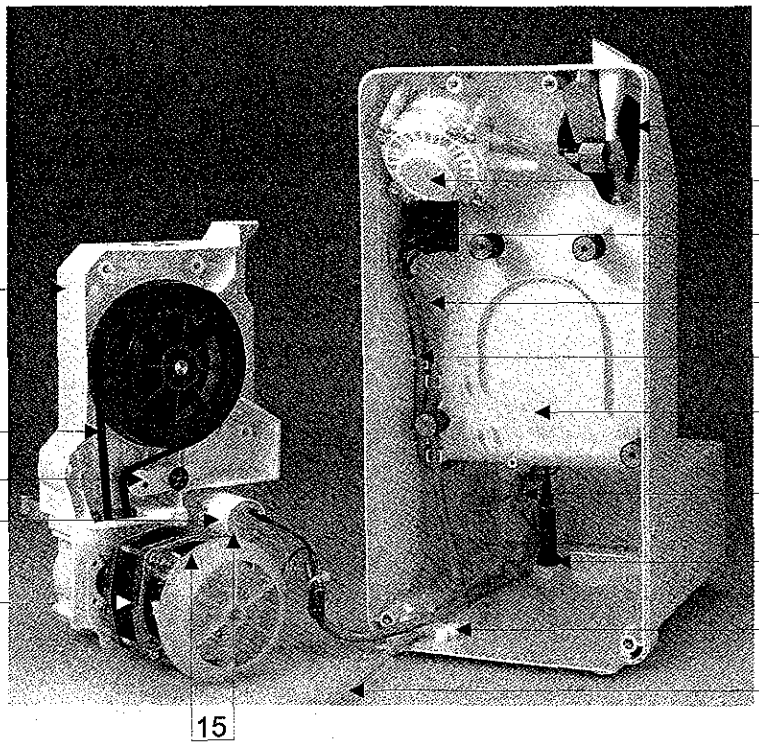
Low Vacuum Aspirator AC 026.7 _ _ _

Item	Order No.	Quantity	Designation
01	600.0496	1	Vario vacuum gauge,10 kPa
02	600.0497	1	Vacuum regulator, Vario Low Vacuum Aspirator
03	600.0480	1	Low Vacuum Aspirator casing AC, pre-assembled

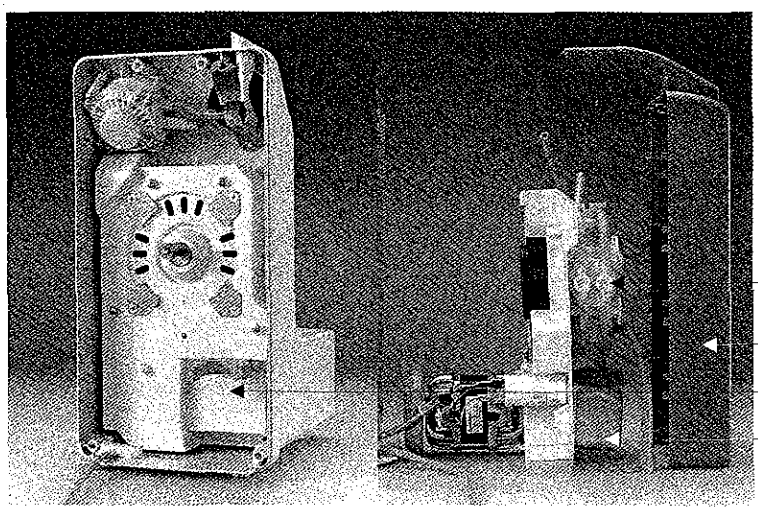
Spare parts in common

Item	Order No.	Quantity	Designation
04	600.0491	1	QuatroFlex™ suction unit, Vario
05	600.0427	1	Rear cover AC, complete
06	600.0540	1	Sound absorber holder, complete
07	800.0276	1	Sound absorber, Vario
10	600.0493	1	AC drive unit (without motor and condenser)
11	824.1373	1	Flat belt, Vario
12	600.0499	1	Belt tensioning pulley, complete
13	954.0418	1	Condenser, 2.5µF
13	954.0417	1	Condenser, 9µF
14	910.0064	1	Condenser motor, 230-240V/50Hz
14	910.0066	1	Condenser motor, 120V/60Hz
15	600.0539	1	Vario motor AC 230-240V, incl. cond. 2.5µF
15	600.0538		Vario motor AC 120V, incl. condenser 9µF
20	934.0162	1	ON/OFF switch (rocker switch)
21	900.0331	1	Power cord (switch - motor)
22	900.0009	1	Power cord (switch - terminal strip)
24	924.0001	1	Terminal strip, 2-pole
25	600.0537	1	Fuse holder, 230-240V/50Hz, complete (ø 5 mm)
25	600.0536	1	Fuse holder, 120V/60Hz complete (ø 6.3 mm)

Item	Order No.	Quantity	Designation
26	810.0385	1	Cord holder
27	928.0001	1	Power cord, 230-240V/50Hz Euro
27	928.0028	1	Power cord, 230-240V/50Hz GB
27	928.0014	1	Power cord, 230-240V/50Hz Australia/New Zealand
27	928.0026	1	Power cord, 120V/60Hz USA



Fuse:
according to declaration on specification plate



Secretion Aspirator AC/DC 026.5 _ _ _

Item	Order No.	Quantity	Designation
01	600.0495	1	Vario vacuum gauge, 100 kPa
02	600.0498	1	Vacuum regulator, Vario Secretion Aspirator
03	600.0438	1	Secretion Aspirator casing AC/DC, pre-assembled

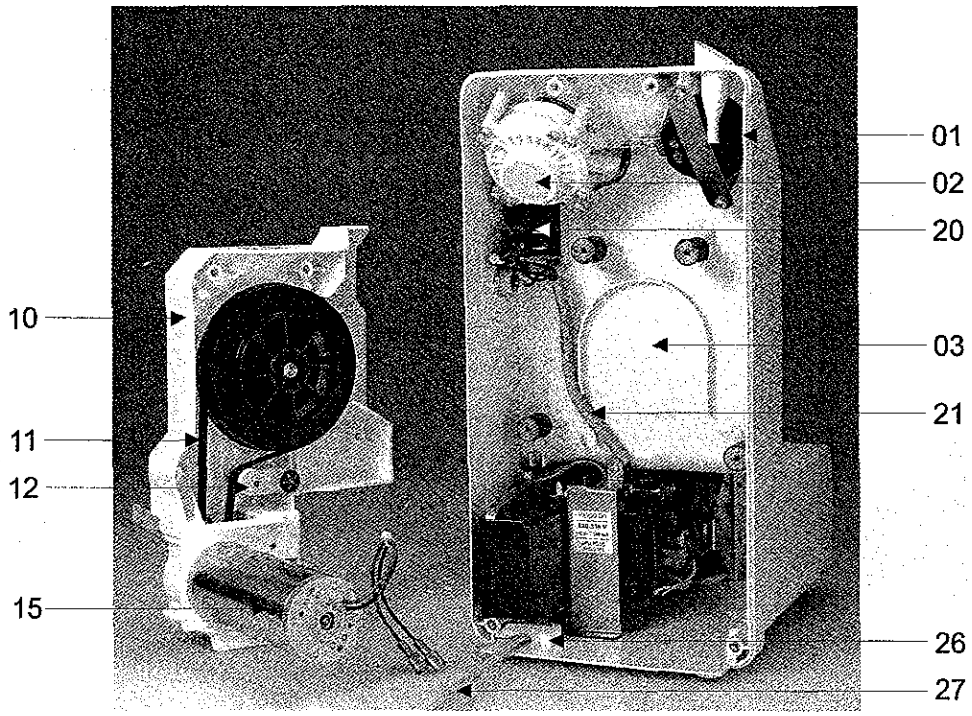
Low Vacuum Aspirator AC/DC 026.8 _ _ _

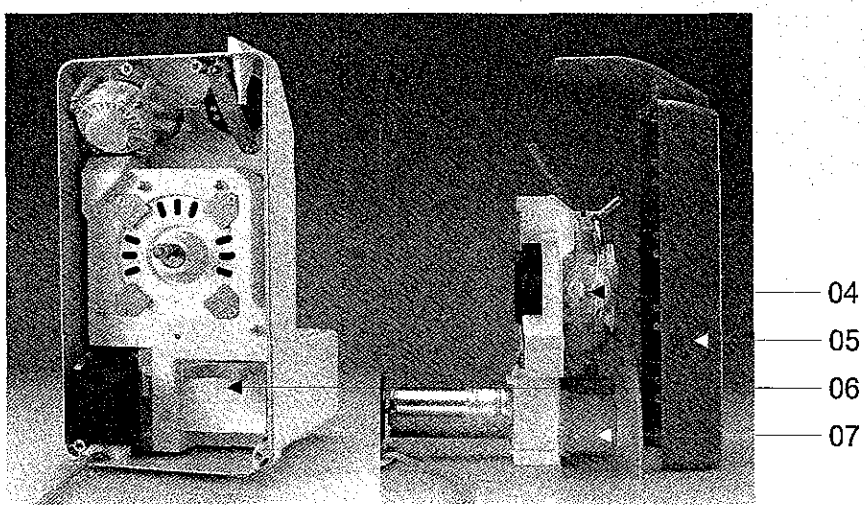
Item	Order No.	Quantity	Designation
01	600.0496	1	Vario vacuum gauge, 10 kPa
02	600.0497	1	Vacuum regulator, Vario Low Vacuum Aspirator
03	600.0525	1	Low Vacuum Aspirator casing AC/DC, pre-assembled

Spare parts in common

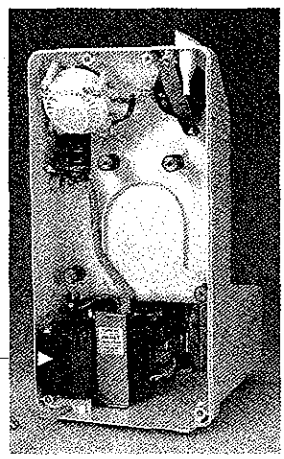
Item	Order No.	Quantity	Designation
04	600.0491	1	QuatroFlex™ suction unit, Vario
05	600.0519	1	Rear cover AC/DC, complete
06	600.0540	1	Sound absorber holder, complete
07	800.0276	1	Sound absorber, Vario
10	600.0535	1	AC/DC drive unit (without motor)
11	824.1373	1	Flat belt, Vario
12	600.0499	1	Belt tensioning pulley, complete
15	600.0534	1	Vario motor AC/DC, complete
20	934.0163	1	ON/OFF switch (rocker switch)
21	900.0017	1	Cable harness, Vario DC
26	810.0385	1	Cord holder

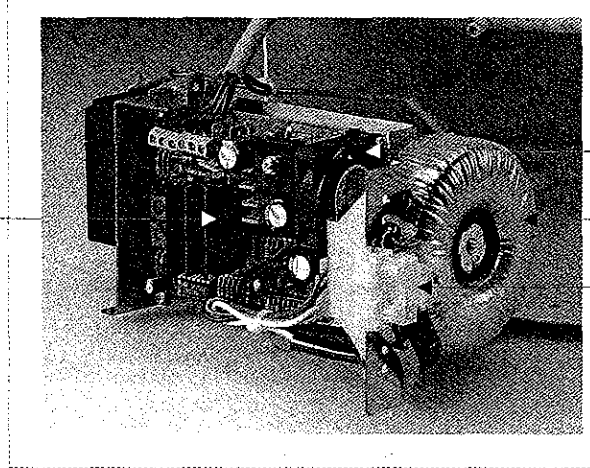
Item	Order No.	Quantity	Designation
27	928.0001	1	Power cord, 230-240V/50Hz Euro
27	928.0028	1	Power cord, 230-240V/50Hz GB
27	928.0014	1	Power cord, 230-240V/50Hz Australia/New Zealand
27	928.0026	1	Power cord, 120V/60Hz USA





Item	Order No.	Quantity	Designation
30	600.0516	1	Electronic module Vario DC 230-240V/50Hz
30	600.0520	1	Electronic module Vario DC 120V/60Hz
31	919.0005	1	Rechargeable battery, 12V DC
32	900.0022	1	Assembled printed circuit board
33	910.0028	1	Cooling fan, 12V DC
34	901.0038	1	Transformer for 120 / 230-240V appliances
35	931.0024	1	Fuse for 230-240V appliances, T 250 mA, ø 5 x 20 mm
35	931.0014	1	Fuse for 120 V appliances T 500 mA, ø 5 x 20 mm





11 Warranty

Medela AG warrants that the Vario suction pump will be free from defects in materials and workmanship for a period of 2 years from the date of receipt. Faulty material will be replaced free of charge during this period if not resulting from abuse or misapplication. This warranty does not extend to parts subject to wear in use, such as flat belts.

To ensure compliance with this warranty as well as optimum service from Medela suction pumps, we recommend equipping our appliances exclusively with Medela accessories.

In no event shall Medela AG be liable for claims which exceed the scope of warranty described including liability for consequential damages, etc. The right to the replacement of faulty parts will not be recognized by Medela if any work has been carried out on the pump by unauthorized persons. This warranty is subject to the appliance being returned to a Medela service centre for repair or replacement.

Regulations according to IEC 601.1 (issued 1990) - Appendix A - § 6.8.2b

The manufacturer may only be held liable for the safety, reliability and suitability for use of the appliance if:

- Installation, additions, readjustments, modifications or repairs are carried out solely by persons authorized by the manufacturer,
- the electrical installations in the room concerned correspond to the relevant specifications

  and

- the appliance is used in conformity with the instructions for use.

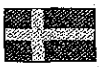
It is a condition of use that the appliance will be operated under the supervision of qualified or authorized staff and that the user is in possession of the specialist knowledge implied by any specific medical application for which the Vario suction pump is used.

Head office
Medela AG
Medical Technology
Lättichstrasse 4
6341 Baar / Switzerland

Phone +41 (0)41 769 51 41
Fax +41 (0)41 769 51 05
email info@medela.ch
www.medela.ch

Subsidiary Germany
Medela Medizintechnik
Postfach 1148
85378 Eching

Phone +49 (0)89 319 75 90
Fax +49 (0)89 319 75 999
email info@medela.de
www.medela.de



Subsidiary Sweden
Medela Medical AB
Box 7266
187 14 Täby

Phone +46 (0)8 630 09 40
Fax +46 (0)8 630 09 48
e-mail info@medela.se
www.medela.se

Subsidiary France
Medela France Sarl
Les Burochettes - RN 20
91150 Morigny-Champigny

Phone +33 (0)1 69 16 10 30
Fax +33 (0)1 69 16 10 32
email medela@wanadoo.fr

Subsidiary Japan
Medela K.K.
Fuji Chuo Building 5F
2-1-7, Shintomy
Chuo-ku, Tokyo 104

Phone +81 3 3553 3571
Fax +81 3 3553 3573
email medelakk@sepia.ocn.ne.jp
www.medela.ca.jp

Subsidiary USA
Medela Inc.
P.O. Box 660
McHenry, IL. 60051-0660

Phone +1 815 363 1166
Fax +1 815 363 1246
email info@medelainc.com
www.medela.com

Subsidiary Canada
Medela Inc.
4090B Sladeview Crescent - Unit 2
Mississauga, Ontario
Canada, L5L 5Y5

Phone +1 905 608 7272
Fax +1 905 608 8720
email customer.service@medela.ca

medela®